INTERVIEW SUMMARY

Applicants wish to thank Examiner Pezutto for the helpful and courteous discussion with Applicants' Representative on January 4, 2005. During this discussion it was noted that GB 1066715, Barr et al and Le Khac et al fail to disclose or suggest a transparent heat-resistant optical material as claimed which exhibits negative birefringence. In addition, the references fail to disclose a method by which negative birefringence could be achieved. Applicants' Representative noted that in the present invention, the molecular chains are oriented by, for example, stretching, calendaring and drawing (specification, paragraph bridging pages 13 and 14) to obtain negative birefringence. None of the above references discloses such steps. The Examiner appeared favorably convinced by our argument.

Further, it was noted that JP-117334 differs from the present invention as it contains one or more N-alkylmaleimide units of formula (II) (JP-117334, abstract).

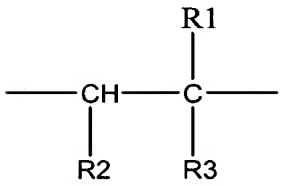
REMARKS

Applicants respectfully request reconsideration of the application, as amended, in view of the following remarks.

The present invention as set forth in **amended Claim 1** relates to a transparent heat-resistant resin optical material, comprising:

a **copolymer consisting essentially of**

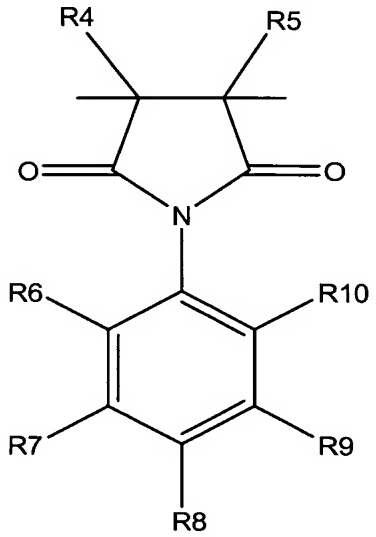
an olefin residue unit represented by the following formula (i):



(i)

wherein R1, R2, and R3 each represents hydrogen or an alkyl group having from 1 to 6 carbon atoms, and

an N-phenyl-substituted maleimide residue unit represented by the following formula (ii):



(ii)

the copolymer having a weight average molecular weight, as reduced into standard polystyrene, of from 5×10^3 to 5×10^6, and

the transparent heat-resistant resin optical material exhibiting negative birefringence.

In contrast, GB 1066715, Barr et al and Le Khac et al fail to disclose or suggest a transparent heat-resistant optical material as claimed which exhibits negative birefringence. In addition, the references fail to disclose a method by which negative birefringence could be achieved. In the present invention, the molecular chains are oriented by, for example, stretching, calendaring and drawing (specification, paragraph bridging pages 13 and 14) to obtain negative birefringence. None of the above references discloses such steps.

GB 1066715 discloses copolymers derived from maleimide and more specifically copolymers of N-aryl maleimides with ethylenically unsaturated hydrocarbons (GB 1066715, page 1, left column, lines 9-12 and 28-37). However, there is no disclosure or suggestion that the copolymers are transparent heat-resistant optical materials which exhibit negative birefringence.

Barr et al disclose copolymers of N-phenyl maleimide and an alpha olefin (Barr et al, col. 1, lines 28-34). Transparent copolymers are disclosed ay col. 4, line 14. However, there is no disclosure or suggestion that the copolymers are transparent heat-resistant optical materials which exhibit negative birefringence. In addition, all that is disclosed is solvent-casting to make films or solvent-spinning to make fiber (Barr et al, col. 4, lines 26-29). There is no disclosure of a method which results in a material having a negative birefringence. As discussed above, in the present invention, the molecular chains are oriented by, for example, stretching, calendaring and drawing (specification, paragraph bridging pages 13 and 14) to obtain negative birefringence. Such methods are not disclosed or suggested in Barr et al.

Le Khac et al disclose a polymer composition containing of a copolymer having recurrent units of a C_2 to C_4 α-olefin and recurrent units of an N-aryl substituted maleimide and an acrylonitrile copolymer (Le Khac et al, abstract). However, there is no disclosure or suggestion that the copolymers are transparent heat-resistant optical materials which exhibit negative birefringence.

In addition, the reference fails to disclose a method by which negative birefringence could be achieved. In the present invention, the molecular chains are oriented by, for example, stretching, calendaring and drawing (specification, paragraph bridging pages 13 and 14) to obtain negative birefringence. The reference does not disclose such steps.

Therefore, the rejection of Claims 1-6 and 19 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over GB 1066715 or Barr et al (U.S. 3,352,832) or Le-Khac (U.S. 4,605,700) is believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of this rejection is respectfully requested.

The rejection of Claims 1-6 and 19 under 35 U.S.C. § 103(a) as being unpatentable overJP-117334 in view of Harris et al (U.S. 5,344,916) is respectfully traversed.

JP-117334 discloses an **olefin/ N-phenyl substituted maleimide/ N-alkyl substituted maleimide copolymer** and an optical material comprising the copolymer. The optical material exhibits **low** birefringence(JP-117334, abstract). However, **low** birefringence is **not negative** birefringence. Further, JP-117334 describes that negative birefringence is controlled by the stereo structure of the benzene ring in the maleimide unit. This description refers only to the **N-phenyl substituted maleimide unit itself** or to N-phenyl substituted maleimide **homopolymer**. However, there is no disclosure or suggestion that the copolymer has negative birefringence.

Further, the optical material of the present invention comprises a **copolymer** consisting essentially of a N-substituted phenyl maleimide compound and an olefin. This is not a **terpolymer** having a N-alkyl substituted maleimide unit as set forth in JP-117334.

Harris et al disclose a **polyimide film** having negative birefringence and a method for controlling negative birefringence in the polyimide film (Harris et al, abstract).

However, there is no disclosure or suggestion of an N-phenyl substituted maleimide/olefin copolymer as part of a transparent heat-resistant resin optical material exhibiting negative birefringence. As such Harris et al fails to cure the defects of JP-117334.

Therefore, the rejection of Claims 1-6 and 19 under 35 U.S.C. § 103(a) as being unpatentable over JP-117334 in view of Harris et al (U.S. 5,344,916) is believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of this rejection is respectfully requested.

Applicants submit herewith a **Form PTO 1449 listing the partial English translation of JP 5-117334**. The partial translation was filed June 24, 2004. The reference was cited in the Information Disclosure Statement filed February 9, 2004 and has been considered by the Examiner on November 4, 2004. However, for completeness of the record, the Examiner is kindly requested to initial, sign and date the attached Form PTO 1449, showing consideration of the partial translation.

Regarding **withdrawn Claims 7-18**, Applicants note that these claims depend on Claim 1. Thus, if Claim 1 is allowable, Claims 7-18 should be allowable as well.

This application presents allowable subject matter, and the Examiner is kindly requested to pass it to issue. Should the Examiner have any questions regarding the claims or otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

Kirsten A. Grueneberg, Ph.D.
Registration No.: 47,297

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
NFO:KAG: